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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,212	10/21/2003	Andrew W. Dornbusch	025.0009	8353

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EXAMINER

CHU, CHRIS C

ART UNIT	PAPER NUMBER
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2815

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/691,212	Applicant(s) DORNBUSCH ET AL.	
	Examiner Chris C. Chu	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 18, 2006 has been entered. An action on the RCE follows.

Response to Amendment

2. Applicant's amendment filed on October 31, 2006 has been received and entered in the case.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 – 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(A) In claim 1, lines 11 and 12, it is not clear what applicant regards as “wherein said first predetermined amount corresponds to a characteristic of said first external filter”. Specifically, the limitation “corresponds to a characteristic” in the claim is not clear because how is the first predetermined amount corresponding to the characteristic? Furthermore, the term “characteristic” in the claim is unclear because the term “characteristic” does not particularly point out and distinctly define the metes and bounds of the subject matter that will be protected by the patent grant.

(B) Dependent claims 2 – 14 do not rectify the deficiency of claim 1 and therefore are similarly rejected.

(C) In claims 15, 21 and 26, it is not clear what applicant regards as “wherein said first terminal and second terminal are separated by a first distance ... that is based on a first characteristic of ... wherein said third terminal and said fourth terminal are separated by a second distance ... based on a second characteristic ...”. Specifically, the limitations “a first distance ... based on a first characteristic” and “a second distance ... based on a second characteristic” in the claim are not clear because how is the first and second distance based on the first and second characteristic? Furthermore, the term “characteristic” in the claim is unclear because the term “characteristic” does not particularly point out and distinctly define the metes and bounds of the subject matter that will be protected by the patent grant.

(D) Dependent claims 16 – 20, 22 – 25 and 27 – 29 do not rectify the deficiency of claim 1 and therefore are similarly rejected.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 – 3, 5 – 7 and 21 – 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Hikita et al. (U. S. Pat. No. 6,396,154).

Regarding claim 1, Hikita et al. discloses in e.g., Fig. 1 an integrated circuit (the semiconductor device in Fig. 1; column 3, lines 49 – 53) comprising:

- a semiconductor substrate (the substrate of the chip 2; column 6, lines 23 – 31) having a first pair of bonding pads (P23 and P24; column 4, lines 10 and 11) for conducting a differential output signal thereon (column 4, lines 4 – 20) and adapted to be coupled to an input of a first external filter (222; see e.g., Fig. 1 and column 4, lines 10 – 13), and a second pair of bonding pads (P21 and P22) for conducting a differential input signal thereon and adapted to be coupled to an output of said first external filter (221; see e.g., Fig. 1 and column 4, lines 10 – 13); and
- an integrated circuit package (1 and 40; see Fig. 2 and column 3, line 54) encapsulating said semiconductor substrate (the substrate of the chip 2) and having first (P13 and P14) and second (P11 and P12) terminal pairs corresponding and coupled to said first and second pairs of bonding pads, respectively (see e.g., Fig. 1),
- wherein said first and second terminal pairs (P11 – P14) are separated by a first predetermined distance (the distance between the elements P11 – P14; see e.g., Fig.

- 1) sufficient to maintain an input-to-output isolation therebetween of at least a first predetermined amount (the amount of the gap between the elements 221 and 222), and
- wherein said first predetermined amount (the amount of the gap between the elements 221 and 222) corresponds to a characteristic (since the element 222 of Hikita et al. is a filter which is a characteristic of the element 222, hence the element 222 of Hikita et al. has a characteristic) of said first external filter (222).

Furthermore, it has been held that the recitation that an element is “adapted to” perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchison, 69 USPQ 138.

Regarding claim 2, Hikita et al. discloses in e.g., Fig. 1 said first predetermined amount (the amount of the gap between the elements 221 and 222) corresponding to an attenuation in a stopband of said first external filter (22; see e.g., Fig. 1).

Regarding claim 3, Hikita et al. discloses in e.g., Fig. 1 said first (P13 and P14) and second (P11 and P12) terminal pairs being located along a first side of said integrated circuit package (1 and 40) and separated by a first plurality of intervening terminals (the pads 12 that are located between the line of P11 – P12 and the other line of P13 – P14; see e.g., Fig. 1).

Regarding claim 5, the limitation “said first plurality of intervening terminals comprises at least one power supply terminal” is an intended use language that does not structurally or patentably distinguish the claimed invention from the structure as disclosed by Hikita et al. Furthermore, since any one of the first plurality of intervening terminals is capable of performing as a power supply terminal, Hikita et al. fully meets this limitation.

Regarding claim 6, Hikita et al. discloses in e.g., Fig. 1 first (P13) and second (P14) terminals of said first terminal pair (P13 and P14) being “adjacent” to one another (see e.g., Fig. 1), and first (P11) and second (P12) terminals of said second terminal pair (P11 and P12) are “adjacent” to one another (see e.g., Fig. 1).

Regarding claim 7, Hikita et al. discloses in e.g., Fig. 1 said first (P13 and P14) and second (P11 and P12) terminal pairs being located at opposite ends of said first side of said integrated circuit package (1; see e.g., Fig. 1).

Regarding claim 21, Hikita et al. discloses in e.g., Fig. 1 an integrated circuit comprising:

- a semiconductor substrate (the substrate of the chip 2) having a first pair of bonding pads (P23 and P24) conducting a differential output signal thereon (column 4, lines 4 – 20) and adapted to be coupled to an input (222) of an external filter (22), and a second pair of bonding pads (P21 and P22) conducting a differential input signal thereon and adapted to be coupled to an output (221) of said external filter (22; see e.g., Fig. 1); and
- an integrated circuit package (1 and 40) encapsulating said semiconductor substrate (the substrate of the chip 2) and having at least first and second sides, and comprising a first pair of terminals (P13 and P14) located at a first end of said first side and coupled to said first pair of bonding pads (see e.g., Fig. 1), and a second pair of terminals (P11 and P12) located at a second end of said first side opposite said first end and coupled to said second pair of bonding pads (see e.g., Fig. 1 and column 4, lines 21 – 32),

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- wherein said first pair of terminals (P13 and P14) and said second pair of terminals (P11 and P12) are separated by a distance (the distance between the P11, P12, P13 and P14; see e.g., Fig. 1) sufficient to maintain an input-to-output isolation therebetween (see e.g., Fig. 1) that is based on a characteristic (since the element 22 of Hikita et al. is a filter which is a characteristic of the element 22, hence the element 22 of Hikita et al. has a characteristic) of said external filter (22; see e.g., Fig. 1).

Furthermore, it has been held that the recitation that an element is “adapted to” perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchison, 69 USPQ 138.

Regarding claim 22, Hikita et al. discloses in e.g., Fig. 1 said integrated circuit package comprising four sides.

Regarding claim 23, Hikita et al. discloses in e.g., Fig. 1 said integrated circuit package further comprises a thin quad flat package (TQFP; since the package of Hikita et al. is a “thin”, four sides and flat, the Hikita et al. fully meets this limitation.).

7. Claims 15 – 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Dreifus et al. (U. S. Pat. No. 5,576,589).

Regarding claim 15, Dreifus et al. discloses in e.g., Fig. 2 an integrated circuit comprising:

- a semiconductor substrate (21; column 6, line 38) having first, second, third, and fourth quadrants having respective first, second, third, and fourth bonding pads (26; see e.g., Fig. 2) located therein (see e.g., Fig. 2), said semiconductor substrate (21)

- including a first circuit (25, at the right-side) adapted to be coupled to a first external filter (24, at the right-side) coupled to said first circuit through said first and second bonding pads (26, at the right-side), and a second circuit (25, at the left-side) adapted to be coupled to a second external filter (24, at the left-side) coupled to said second circuit through said third and fourth bonding pads (26, at the left-side); and
- an integrated circuit package (the external integrated circuits device that is attached to the element 21; column 6, lines 33 and 34) encapsulating said semiconductor substrate (21) and having first, second, third, and fourth terminals (the pads on the external integrated circuits device that are attached to the elements 26) corresponding and coupled to said first, second, third, and fourth bonding pads, respectively (see e.g., Fig. 2 and column 6, lines 33 and 34),
 - wherein said first terminal and said second terminal (the pads on the external integrated circuits device that are attached to the elements 26) are separated by a first distance (the distance that is formed between the elements 26) sufficient to maintain a first input-to-output isolation therebetween that is based on a first characteristic (since the element 24, at the right-side of Dreifus et al. is a first filter which is a characteristic of the element 24, at the right-side, hence the 24, at the right-side of Dreifus et al. has a first characteristic) of said first external filter (24, at the right-side), and
 - wherein said third terminal and said fourth terminal (the pads on the external integrated circuits device that are attached to the elements 26) are separated by a second distance (the distance that is formed between the elements 26) sufficient to

maintain a second input-to-output isolation therebetween that is based on a second characteristic (since the element 24, at the left-side of Dreifus et al. is a second filter which is a characteristic of the element 24, at the left-side, hence the 24, at the left-side of Dreifus et al. has a second characteristic) of said second external filter (24, at the left-side; see e.g., Fig. 2).

Furthermore, it has been held that the recitation that an element is “adapted to” perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchison, 69 USPQ 138.

Regarding claim 16, Dreifus et al. discloses in e.g., Fig. 2 said first and second circuits (25s in the both sides) comprising portions of radio frequency (RF) receivers (column 8, lines 20 – 22).

Regarding claim 17, the limitation “said first circuit comprises a portion of a satellite receiver and said second circuit comprises a portion of a terrestrial receiver” is an intended use language that does not structurally or patentably distinguish the claimed invention from the structure as disclosed by Dreifus et al. Furthermore, since any one of the first and second circuits are capable of performing as a satellite receiver or a terrestrial receiver, Dreifus et al. fully meets this limitation.

Regarding claim 18, Dreifus et al. discloses in e.g., Fig. 2 said first and second circuits (25s in the both sides) having “substantially” the same layout (see e.g., Fig. 2).

Regarding claim 19, Dreifus et al. discloses in e.g., Fig. 2 said first and second circuits (25s in the both sides) being adapted to be coupled to first and second external surface acoustic wave (SAW) filters (24; column 6, lines 36 – 46), respectively (see e.g., Fig. 2). Furthermore, it

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has been held that the recitation that an element is “adapted to” perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchison, 69 USPQ 138.

8. Claims 26, 27 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Hazama et al. (U. S. Pat. No. 4,296,391).

Regarding claim 26, Hazama et al. discloses in e.g., Fig. 9B an integrated circuit comprising:

- adjacent first (41; column 9, lines 67 – 68) and second (41') terminals at a first end of a first side of the integrated circuit (20; column 7, line 34) adapted to be coupled to a differential input (23 and 26; column 9, line 65) of a first external filter (the VHF filter; column 9, line 66);
- adjacent third (42; column 10, lines 1 and 2) and fourth (42') terminals at a second end of said first side of the integrated circuit (20) adapted to be coupled to a differential output (24 and 25; column 9, line 68) of said first external filter (the VHF filter; see e.g., Fig. 9B), wherein said adjacent first (41) and second (41') terminals and said adjacent third (42) and fourth (42') terminals are separated by a first distance (the distance between the elements 41, 41', 42 and 42') sufficient to maintain an input-to-output isolation therebetween that is based on a characteristic (since the element VHF filter of Hazama et al. is a first filter which is a characteristic of the

- VHF filter, hence the VHF filter of Hazama et al. has a characteristic) of said first external filter (the VHF filter);
- adjacent fifth (43; column 10, line 5) and sixth (43') terminals at a first end of a second side of the integrated circuit (20) adapted to be coupled to a differential input (29 and 32; column 10, line 2) of a second external filter (the UHF filter; column 10, line 3); and
 - adjacent seventh (44; column 10, line 8) and eighth (44') terminals at a second end of said second side of the integrated circuit (20) adapted to be coupled to a differential output (30 and 31; column 10, lines 5 and 6) of said second external filter (the UHF filter; see e.g., Fig. 9B). wherein said adjacent fifth (43) and sixth (43') terminals and said adjacent seventh (44) and eighth (44') terminals are separated by a second distance (the distance between the elements 43, 43', 44 and 44') sufficient to maintain an input-to-output isolation therebetween that is based on a characteristic (since the element UHF filter of Hazama et al. is a second filter which is a characteristic of the UHF filter, hence the UHF filter of Hazama et al. has a characteristic) of said second external filter (the UHF filter; see e.g., Fig. 9B).

Regarding claim 27, Hazama et al. discloses in e.g., Fig. 9B the integrated circuit comprises a quad flat package (since the package of Hazama et al. has four sides and flat, the Hazama et al. fully meets this limitation.).

Regarding claim 29, Hazama et al. discloses in e.g., Fig. 9B each of said first and second external filters comprising a surface acoustic wave (SAW) filter (column 4, lines 60 – 63).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4, 8 – 14, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hikita et al.

Regarding claims 4 and 11, while Hikita et al. discloses the use of the first (claim 4 and claim 11) and second (claim 11) pluralities of intervening terminals, Hikita et al. does not disclose the specific number of the first and second pluralities of intervening terminals. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to determine the first and second pluralities of intervening terminals being twelve terminals, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 8 and 25, while Hikita et al. discloses the use of the semiconductor substrate and the integrated circuit package, Hikita et al. does not disclose third and fourth pair of bonding pads in the semiconductor substrate and third and fourth terminal pairs in the integrated circuit package. It would have been obvious to one having ordinary skill in the art at the time when the invention was made to duplicate the first and second pair of bonding pads onto a portion of a bigger semiconductor substrate to have the third and fourth pairs of bonding pads, also duplicating the first and second terminal pairs to have third and fourth terminal pairs in the integrated circuit package, since it has been held that mere duplication of the essential working

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parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claim 9, Hikita et al., as modified, discloses said first and second predetermined amounts (the amount of the gaps between the circuits in the filters) corresponding to differences between an attenuation in a stopbands of said first and second external filters, respectively.

Regarding claim 10, Hikita et al., as modified, discloses said first and second terminal pairs being located along a first side of said integrated circuit package (1) and separated by a first plurality of intervening terminals and said third and fourth terminal pairs being located along a second side of said integrated circuit package and separated by a second plurality of intervening terminals.

Regarding claim 12, the limitation “said first and second pluralities of intervening terminals comprises at least one power supply terminal” is an intended use language that does not structurally or patentably distinguish the claimed invention from the structure as disclosed by Hikita et al. Furthermore, since any one of the first and second pluralities of intervening terminals is capable of performing as a power supply terminal, Hikita et al. fully meets this limitation.

Regarding claim 13, Hikita et al., as modified, discloses first and second terminals of each of said first, second, third, and fourth terminal pairs being adjacent to one another.

Regarding claim 14, Hikita et al., as modified, discloses said first and second terminal pairs being located at opposite ends of said first side of said integrated circuit package and said

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third and fourth terminal pairs being located at opposite ends of said second side of said integrated circuit package.

Regarding claim 24, while Hikita et al. discloses the use of the thin quad flat package (TQFP), Hikita et al. does not disclose the specific number of the terminals having 64-lead TQFP. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to determine the thin quad flat package (TQFP) having 64-leads, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

11. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dreifus et al. in view of Hayashi (U. S. Pat. No. 6,329,715).

While Dreifus et al. discloses the use of the first, second, third and fourth bonding pads, Dreifus et al. does not disclose fifth, sixth, seventh, and eighth bonding pads. Hayashi teaches in e.g., Fig. 1 a semiconductor substrate (1; column 7, lines 41 – 50) comprising fifth (301), sixth (302), seventh (303), and eighth (304) bonding pads respectively located in said first, second, third, and fourth quadrants (see e.g., Fig. 1) and forming complementary signal pairs with signals conducted on said first (32), second (311), third (312), and fourth (33) bonding pads, respectively (see e.g., Fig. 1 and column 7, lines 53 – 56). It would have been obvious to one of ordinary skill in the art at the time when the invention was made to apply the fifth, sixth, seventh, and eighth bonding pads of Hayashi onto the semiconductor substrate of Dreifus et al. as taught by Hayashi to provide ground pads for grounding (column 8, lines 47 and 48).

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12. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hazama et al.

While Hazama et al. discloses the use of the terminals, Hazama et al. does not disclose the number of the terminal being sixty four and assignment of pin numbers to the terminals. It would have been obvious to one having ordinary skill in the art at the time when the invention was made to determine the terminals being sixty four and to assign pin numbers to the terminals, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art for the purpose of defining and identifying which operation each terminal would perform within the integrated circuit. Furthermore, see *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) for the optimum value.

Response to Arguments

13. Applicant's arguments filed on December 18, 2006 have been fully considered but they are not persuasive.

On page 8, applicant argues "Hikita ... includes comb-shaped electrodes 221 and 222, connection pads P21 and P22 do not form a pair of bonding pads that are configured to conduct a differential (input or output) signal. Nor do connection pads P23 and P24 form a pair of bonding pads that are configured to conduct a differential (output or input) signal". This argument is not persuasive because P21 and P24 of Hikita are pair of bonding pads (column 4, lines 10 and 11) of element 221 (see Fig. 1 of Hikita). Also, if P21 is an input pad for an input signal, then P22 must be an output pad for an output signal of the element 221 or if P22 is an input pad for an input signal, then P21 must be an output pad for an output signal of the element 221.

Furthermore, the input signal and the output signal are not producing same signals. Thus, the P21

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and P22 of Hikita conduct a differential (input or output) signal. This also applied to the P23 and P24 of Hikita of element 222, too. Thus, (P21, P22) and (P23, P24) of Hikita are two sets of a pair of bonding pads that are configured to conduct a differential (output or input) signal.

Furthermore, applicant argues “Hikita does not disclose separating a terminal pair connected to the connection pad pair P22 and P23 and another terminal pair connected to the connection pad pair P24 and P21 by a distance sufficient to maintain an input-to-output isolation between the connection pad pair P22 and P23 and the connection pad pair P24 and P21. More specifically, Hikita does not disclose what pins (terminals) provided by the lead frame 14 are not coupled to the connection pads P21 – P24”. This argument is not persuasive. Since applicant does not specifically claim that the bonding pads P21 – P24 are connected to the terminals of the lead frame, a reasonable interpretation of the term “terminal” includes the structure taught by Hikita. In other words, the terms “pad” and “terminal” are nothing more than semantics. Whether one refers to an element P11 as a pad or terminal, there is no structural or functional difference existing between two terms. Therefore, Hikita discloses separating a terminal pair connected to the connection pad pair P22 and P23 and another terminal pair connected to the connection pad pair P24 and P21 by a distance sufficient to maintain an input-to-output isolation between the connection pad pair P22 and P23 and the connection pad pair P24 and P21 (see e.g., Fig. 1).

Next, applicant argues “Dreifus does not teach or suggest separating a first terminal (input or output) connected to one of the contact pads 26 and a second terminal (an output or input) connected to another one of the contact pads 26 by a distance sufficient to maintain an input-to-output isolation ... between the first terminal and second terminal”. This argument is not persuasive because Dreifus discloses in e.g., Fig. 2 and column 6, lines 33 and 34 that the

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contact pads 26 are attached to the pads on the external integrated circuits device. Since the pads 26 of Dreifus are formed separately to each other, hence the terminals that are connected and formed on the pads 26 are formed separately to each other. Thus, Dreifus does teach or suggest separating a first terminal (input or output) connected to one of the contact pads 26 and a second terminal (an output or input) connected to another one of the contact pads 26 by a distance sufficient to maintain an input-to-output isolation ... between the first terminal and second terminal, as recited in claim 15 (see paragraph seven of this Office action for detail).

Finally, applicant argues "Hazama does not teach or suggest separating first and second terminals (differential input) from third and fourth terminals (differential output) by a distance sufficient to maintain an input-to-output isolation (that is based on a characteristic of a first external filter) between the first and second terminals and the third and fourth terminals." This argument is not persuasive. Hazama discloses in e.g., Fig. 9B and column 9, lines 65 – 68 separating first (41; the input terminal of VHF_L of the input transducer 23) and second (41'; the input terminal of VHF_H of the input transducer 26) terminals having differential input and third (42; the output terminal of VHF_L of the output transducer 24) and fourth (42'; the output terminal of VHF_L of the output transducer 25) terminals having differential output. Also, Hazama clearly shows in e.g., Fig. 9B that the first and second terminals are separated from the third and fourth terminals by a distance sufficient to maintain an input-to-output isolation between the first and second terminals and the third and fourth terminals, as recited in claim 26 (see paragraph eight of this Office action for detail).

For the above reasons, the rejection is maintained.

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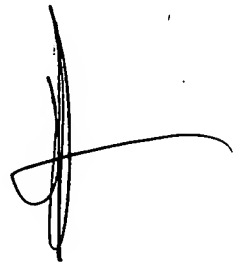
Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is 571-272-1724. The examiner can normally be reached on 11:30 - 8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner
Art Unit 2815



c.c.
Monday, January 29, 2007

KENNETH PARKER
SUPERVISORY PATENT EXAMINER